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Maternal and non-maternal caregivers' practices in drug administration to children during illness

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Abstract

As work practices and living arrangements change, many mothers, who are often primary child caregivers, have to make some decisions as they try to balance childcare with paid work. Increasingly, childcare is shared between parents and other caregivers. However, little is known, especially in Ghana, about the childcare practices of mothers and household non-maternal caregivers in relation to drug administration. This study was conducted in the Kumasi metropolis of Ghana to explore maternal and household non-maternal caregivers' drug administration practices to identify risk factors that are directly linked to negative child health outcomes. Primary data include in-depth interviews with mothers and household non-maternal caregivers (n=56) and focus group discussions (n=3). Mothers were found to be more assertive than other household non-maternal caregivers in the identification of illnesses symptoms and decisions about treatment options. However, both mothers and other caregivers were very active agents in household drug administration practices. Both caregivers indicated their compliance with medicine regimens but mothers were more likely to show a consistent understanding of medicine side effects and instructions. However, neither mothers nor the other caregivers were consistent in checking for expiry dates. Some risks to child health outcomes were identified as a result of this dual caregiving arrangement. It is recommended that further studies be conducted with larger samples and with wider geographic scope. Similarly, it is recommended that the drug administration practices of other non-maternal caregivers (for example, fathers and teachers) could be explored.

Key words: Childcare, drug, administration, health, Ghana

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Introduction

Mothers and other caregivers have long been recognised as key agents in improving child health (Friend-du Preez, Cameron, & Griffiths, 2009; WHO, 2009; UNICEF & WHO, 1978). This is particularly true in developing countries, where large numbers of children under five still die from preventable and treatable infectious diseases such as, pneumonia, diarrhoea and malaria (Ashraf et al., 2013; Foote et al., 2013; Hazel et al, 2013; World Health Organisation [WHO], 2013). Despite significant improvements in the last couple of decades, under five mortality in Ghana remains unacceptably high at 60 deaths per 1000 births, and 80/1000 in Ashanti Region, where this current study was undertaken (WHO, 2017; Ghana Statistical Service [GSS] et al, 2015).

In this paper, we explore the role of child caregivers (mothers and others) within the household in managing illness and identifying practices that might result in poor child health outcomes. We define ‘household caregivers’ operationally as mothers and other household members who provide time, attention and support to meet the physical, mental and social needs of a growing child (Hadley, Tessema and Muluneh, 2012); see also Engle, Bentley and Pelto (2000). Our focus here is particularly on health-related caregiving. A growing body of research highlights the importance of the caregivers’ knowledge and experience for successful morbidity management among young children; for example, identifying symptoms, seeking appropriate treatment and administering medication (Claeson & Waldman, 2000). There is evidence, for example, that delays in treatment-seeking can have serious negative health consequences, especially for young children (Ellis et al., 2013). In relation to administering medicines, attention to dosage accuracy, crushing or dissolving medicines and encouraging children to swallow unpalatable medicines, hinges on reliable child caregivers (Bélard et al., 2015).

Despite some shifts in gender roles, women continue to take the major responsibility for childcare in developing countries like Ghana (Smith, 2004; Tolhurst et al, 2008). Findings from the 2010 Ghana Population and Housing Census indicated that the proportion of economically active women was almost the same as men – 44 percent and 43.7 percent respectively (GSS, 2014). Working mothers often have to juggle domestic roles with paid work. Socio-economic, cultural and technological changes experienced globally have significantly impacted on the lives of working mothers and their caregiving roles (Cassirer & Addati, 2007; Kalleberg & Marsden, 2013) which can sometimes constrain their ability to provide quality care for children (Marshall et al, 2007), with potentially detrimental health consequences. However, especially for women with insecure employment, there can be serious economic risks from prolonged absence from work to care for a sick child (Carpenter, 1980).

One common ‘solution’ to this problem in Ghana and elsewhere is to engage the services of household non-maternal caregivers – generally females – to support childcare. Unlike some higher-income countries, where childcare arrangements are often formalised and monetised through paid nannies, in Ghana, informal arrangements predominate (Wrigley, 1999; Nukunya,

1992). Across West Africa, it is common for relatives like grandmothers, older siblings, cousins and aunts to play an active role in day-to-day childcare (Isiugo-Abanihe, 1985). In addition, many well-to-do families engage ‘househelps’: typically, adolescent girls, who may or may not be direct relatives, to assist with housework and childcare (Hampshire et al, 2015). The practices of these non-maternal (female) caregivers can impact seriously on child health outcomes. For example, in Guatemala, Engle and Lhotská (1997) reported that when working mothers did not have a good alternate child caregiving system, their children were more malnourished than children of working mothers with good alternate caregiving systems. According to the 2008 Ghana Demographic and Health Survey, 33% of children who were being cared for by household non-maternal caregivers were more likely to be stunted (GSS et al, 2009).

However, we know very little about the practices of maternal and non-maternal carers, and about the processes through which these may result in risks to child health. For instance, how do mothers and non-maternal caregivers perceive children illnesses at the household level? Are there similarities or differences in the caregivers’ adherence to medicine regimen, understanding of medicines side effects and expiry dates? This study, conducted in the Kumasi metropolis in Ghana, was implemented to respond to these questions and to identify risk factors that are directly linked to negative child health outcomes.

Methodology

This was an explorative small-scale qualitative study conducted to have an in-depth understanding of the social interactions between mothers, non-maternal caregivers and children under five years old who are being simultaneously cared for by the two (usually female) caregivers in a household. A key aim was to understand how the caregiving practices individually or collectively help explain some of the factors that contribute to the relative high children morbidity and mortality rates in urban Ghana.

Study participants

The individual household respondents were middle-class mothers and one principal household non-maternal child-caregiver (usually grandmother or househelp) who were jointly caring for one or more children under five (‘index child’) in the household. We operationalised middle-class mothers in this study as those who had attained a higher academic degree or engaged in a professional career or private business and earning income, owned some fixed assets and able to engage the services of household non-maternal caregivers. Fathers were excluded from this study although some were present in the households during the interview sessions. Their views on the subject-matter will be presented in another study. The mothers were first contacted to confirm that the index child had been sick during the month, to ensure a consistent recall period for illness management practices. Furthermore, the two caregivers were to be available and willing to participate in the study. The same criteria were used to recruit mothers and non-maternal caregivers

(generally househelps) for three focus group discussions: one with mothers (n=8), the second with female non-maternal caregivers (n=9) and the third with male non-maternal caregivers (n=6). The rationale for selecting different categories of respondents was to capture data from varied perspectives and triangulate them to facilitate the analysis of maternal and non-maternal caregivers' practices in administering drugs to children in households.

Instruments

An in-depth interview guide was developed to elicit data from the household respondents while a discussion guide was used for focus group discussions. Aside gathering data on background characteristics of respondents, some questions asked included detailed narratives of respondents' account of index children illnesses during the month preceding the interview (dates of onset and end of illness, treatment options utilised, reasons for each option, medicine administration and adherence to regimen as well as knowledge of medicine expiry dates and side effects).

Data collection procedure

Identification of eligible households started from the capitals of area councils or sub-metropolitan areas in Kumasi. Starting from the centre of the capital, households were identified through asking community members for information on eligible respondents using the iterative (door to door) procedure, and then snowball sampling. The household respondents were interviewed simultaneously to avoid the possibility that they might confer, and thus alter their stories between interviews.

The interviews and group discussions commenced by securing the informed consent of the interviewees through a prepared informed consent form. This was followed by recording basic background characteristics of the respondents, after which the caregivers provided detailed narratives on the children's illness management and drug administration during the month preceding the interview (using interview or group discussion guides as appropriate). The sessions ended by asking respondents how household child caregivers could assist in promoting quality childcare. All the interviews and focus group discussions were digitally recorded, with participants' permission, and conducted in the Twi local language or English depending on the preferred language of a respondent. This process was repeated in all the nine sub-metros in Kumasi. After interviewing 56 individual respondents (28 paired-caregivers), thematic and theoretical saturation was reached (a well-recognised approach for determining sample size in qualitative research: Rosenthal et al, 2009). In general, the issues discussed in the focus groups did not differ much from what ensued during the individual interviews but this offered useful triangulation.

All the responses were respected and not treated judgmentally based on our personal or previous experiences. There were some respondents who provided detailed responses to some questions

while a few had little to say about some issues that were explored. The duration for each interview or discussion session therefore varied but, on the average, an interview session lasted between 40 to 50 minutes or 60 minutes for the group discussions. The study was ethically cleared by an Institutional Review Board before commencement of primary data collection. All potential identifying details of the respondents have been anonymised using pseudonyms to ensure confidentiality and anonymity of the respondents.

Data analysis and management

All the digital recordings were transcribed verbatim and were translated from the local language into English. It is recognised that meanings may shift slightly in translation; however, the first two authors, who are bilingual in English and Twi, checked a sample of translations to ensure maximum accuracy. This was followed by a detailed cross-checking of each transcript with the digital recordings (playback) to eliminate omissions and ensure accuracy, consistency and fluency of the translations. A thematic analysis framework was then adopted to manually analyse the data through four sequential stages. The first stage comprised the familiarisation of the transcripts by thoroughly reading and re-reading them by the authors to identify common themes and codes on child caregivers' illnesses management practices and drug administration. This was followed by organisation of thoughts and ideas in the transcripts to identify the differences and commonalities in the responses while the third stage involved the mapping and interpretation of patterns, associations, linkages, and variations in the responses. The last stage entailed the triangulation of data available to validate ideas and interpretations. The thematic analysis framework is one of the commonly used frameworks that allows the inclusion of emergent concepts (Lacey & Luff, 2009). Some salient quotes in the responses were noted and used to illustrate the key findings. The data analysis was therefore thematic and inductive in nature.

The voice digital recordings have been permanently deleted from the recorder while the hand notes taken during the interviews and discussions were burnt immediately after transcription to ensure the confidentiality and anonymity of the respondents. The soft copies of the transcripts have been electronically saved on a secured password protected device.

Results

Brief background characteristics of respondents

Table 1 presents some background characteristics of the mothers and non-maternal caregivers.

TABLE 1 HERE

It can be seen from Table 2 that most of the non-maternal caregivers had been working in this capacity for a period ranging from one to five years (n=17) with just a handful who had worked for less than a year or six years and above. Just over half of the caregivers were related to the mother, with the most frequent of these being their own mothers (i.e. grandmother of the index

children), the others being cousins or older aunts. Just under half (13/28) were non-relatives (“househelps”).

TABLE 2 HERE

Table 3 provides a brief background information on the focus group discussants. The maternal focus group discussants were aged between 32 to 57 years, were all married and had lived in Kumasi since birth. All the househelp non-maternal focus group discussants were teenagers staying with relative (n=9) or non-relative maternal caregivers (n=6).

TABLE 3 HERE

Perceived child illnesses

Table 4 shows the illnesses that mothers and non-maternal caregivers perceived the child to have had in the preceding month. Most common among these were malaria, ‘fever’, diarrhoea and skin rashes or boils. Note that there were some differences in perceptions between mothers and non-maternal caregivers. Caregiver illnesses’ management practices may, among other things, depend on their ability to recognise illness symptoms. In general, the household respondents indicated that the index children had been affected by illnesses such as diarrhoea, fever, malaria and flu.

TABLE 4 HERE

All twenty-eight mothers reported that the children had been sick during the preceding month, while three non-maternal caregivers (a grandmother and two househelps) indicated that the child had not been unwell during the period. There are also some discrepancies in interpretation of illness symptoms; for example, seven mothers reported that index children had been ill from malaria compared with just four non-maternal caregivers.

The narration by Emelia’s caregivers is illustrative of some of the issues raised above. One and half year-old Emelia’s mother (27 years old) indicated that she observed some blood stains around Emelia’s genitals and was thinking it might be due to a fall or an injury. However, Emelia’s 57-year-old grandmother was of the opinion that the girl was sick with malaria.

Choice of treatment options and underlying reasons

There are multiple health-seeking options in the Kumasi metropolis of Ghana. These range from government health facilities such as hospitals, pharmacy shops/drug stores, herbalists and faith healers. Utilisation of a treatment option has been found to be associated with some factors such as economic status and educational background (Smith, 2004; Hampshire & Owusu, 2013). When the household caregivers were asked to indicate their preferred health facility for a sick child, biomedical care emerged as the most preferred option for both mothers (18/28) and non-maternal

caregivers (15/28) but with a significant proportion of both preferring other options (Table 5). Some caregivers also reported using ‘surplus’ medicines stored at home rather than seeking new treatment. Further analysis of the responses was indicative that the decision on which health facility to contact first was largely the prerogative of maternal caregivers. Indeed, none of the househelps was involved and only three out of the 12 grandmothers reported taking the index children to a health facility at some point in time.

TABLE 5 HERE

When asked why they preferred to seek biomedical care, mothers tended to cite three main reasons: equipment at health facilities, accessibility and emergency nature of children illnesses. Juliet’s mother is an illustration of mothers who preferred biomedical treatment based on quality health services. Juliet was five months old at the time of the interview. The mother indicated that she saw some reddish swellings on Juliet’s forehead and around her breast:

I sent her to the hospital...I was initially scared since she kept crying and I did not know exactly what was wrong with her. Moreover, she is my first child...I took her to that particular hospital because...their services are good.... It is relatively close to my house... I think it’s a public hospital since they do not charge as high as that of the private hospitals [Juliet’s mother, 27 years].

There were few instances where the mothers were switching health facilities. Such mothers cited considerations such as long queues or delays at facilities, distance to health facilities and severity of children illnesses. For instance, Doris was a 3-year old girl who was being cared for by her 32-year old mother (a businesswomen) and a 14-year old non-maternal caregiver. The mother suspected that Doris was sick from malaria; when asked about her choice of treatment option, she mentioned a couple of facilities depending on the exigencies of the time:

I sometimes go to the pharmacy shop to buy medicines for Doris... I sometimes take her to Komfo Anokye Teaching Hospital (KATH) or the Manhyia Hospital. As for the latter, it just here but for KATH, it takes me about 30 minutes or more My choice depends on the condition of Doris and the time I will take to get a Physician to attend to her. If the illness becomes severe in the evening, I can easily go to Manhyia Hospital so that I wouldn’t have to join a long queue. If the illness is very serious, I will take her to KATH [Doris’s mother].

Caregivers’ drug administration practices

Although only four mothers and three non-maternal caregivers reported home treatment as their preferred treatment option, it emerged from the interviews that the majority of those seeking care at hospital/clinic had first administered medication at home (12 mothers and one grandmother). Indeed, except in two households, all the others kept some medicines at home they referred to as ‘first aid’. Two key reasons were given for keeping a stock of medicines at home: first, to be able to respond immediately to mitigate the severity or pain associated with illnesses; and second, the

notion that they (mothers) are already familiar with the treatment option(s) due to previous experiences with similar illnesses. The contents of the medicines in the first aid boxes included ante malarial, antibiotics, plasters, gentian violet and basic analgesics. Such medicines were typically re-administered to children if previously-observed symptoms resurfaced. What is not certain is the extent to which the caregivers may mis-administer medicines, because some symptoms (e.g. fever) may be associated with more than one health condition (Cohen & Scheeringa, 2009).

Adherence to medicine regimen

Respondents were asked a series of questions that related to their adherence to medicine regimen, checking for medicine expiry dates and ability to recognise medicine side effects on children (Table 6).

TABLE 6 HERE

In most households, maternal and non-maternal caregivers both reported being actively involved in administering medicine, with only two households where the non-maternal caregivers indicated that they were not allowed to administer medicines to children. By contrast, mothers were the dominant agents regarding treatment decisions. Generally, both sets of caregivers indicated their strict compliance with medicine regimen, except for few caregivers who indicated that they discontinue the regimen once the child has appeared to make a full recovery.

Generally, in cases where non-maternal caregivers were administering medicines to children, this was premised on instructions issued by the mother. This narrative is typical:

My mother gives me strict instructions on how to administer the medicines to Joyce. She tells me about the dosage, time and all the other information I will need [Joyce's' non-maternal caregiver, 18 years old].

However, it was not always easy for mothers to tell whether their instructions had indeed been followed. During the interviews, mothers reported that they sought this confirmation either verbally from the index children, by asking for a demonstration of the drug administration process by non-maternal caregivers, or checking for reduced contents of the medicines as illustrated by this response from James's mother:

When I return home, I first ask my mother if she did as I said and I will ask her to demonstrate to me how she measured the medicine. I also look at the reduced contents of the medicine to see it for myself [James' mother, 31 years old].

This issue was also explored during the focus group discussions. Their responses were generally not different from the individual household respondents except few mothers who expressed doubt that their non-maternal caregivers had actually followed the recommended regimen:

I read the regimen instructions before I give out medicines to my children. I also try to give out this same information to my househelp. As to whether she practices them when she is left alone with the child..? [Maternal discussant, 42 years old].

Narratives from ten non-maternal interviewees and two non-maternal focus group discussants supported the assertion that the mothers indeed followed up on how they administered the medicines or complied with recommended regimen. However, none of these methods is perfect, since a reduced amount of remaining medicine might also result from spillage or a child refusing to swallow a bitter medicine.

Understanding of medicine side effects

While seventeen mothers reported consistent understanding of a medicine's side effects, the same was reportedly true of only two non-maternal caregivers (one househelp and a grandmother). The majority of non-maternal caregivers had not given much thought to side effects, having received no information from healthcare personnel and/or an assumption this was the responsibility of the mother. The account of Eric's non-maternal caregiver is an example:

They don't tell us the side effects. They only tell us the time to administer the medicine, either morning or evening, before or after meals [Eric's non-maternal caregiver, 25 years old].

Precautions on medicines and expiry dates

With regards to caregivers' understanding and knowledge of basic precautions or instructions on medicines such as storage or allergies, more mothers (n=12) than non-maternal caregivers (n=5) indicated being consciously aware of these before administering the medicines to children. For the maternal caregivers, common precautionary measures were keeping medicines away from children or storing them in cool and dry places. The caregivers were also asked if they regularly checked expiry dates on medicines before administering them. It was only in eight households where both caregivers indicated that they always checked the expiry dates on medicines. Indeed, it was only eight households (mothers and househelps) where both caregivers indicated consistently making this check before administering the medicines. In most other cases, basic checks were not made:

I have seen the information on the leaflets but I do not always read them. I just follow what the health practitioners have told me. Hmmm, I have not even taken time to ask myself if the medicine has expired. I have not even checked whether the way I administer the medicine is the right way to give out medicines to the child [Maternal discussant, 32 years old].

If you are given the medicine at a pharmacy shop or at the hospital, they give you clear instructions on how to administer them to the child and so that is what I follow. I have only read the information and instructions once but my Auntie normally reads them. I don't

check the expiry date on the drugs but even the sight of the medicine can inform me that the medicine is expired or not [16 years old, non-maternal caregiver].

Child health outcomes

Another key issue identified from the responses of group discussions was the negative impact on child health outcomes resulting from poor illness management. These consequences ranged from physical injuries through to critical health conditions. Indeed, some non-maternal caregivers criticised mothers for concentrating on their career to the detriment of their children's health. In other cases, mothers were critical of the care given by non-maternal caregivers:

There was a day my non-maternal caregiver was supposed to give medicine to my child while I was away. She was supposed to give it to her in the afternoon and the evening but she forgot the afternoon dose [...] She gave out a double dose in the evening thinking that it will cater for the afternoon one she missed. My child nearly died [Maternal discussant, 57 years old].

In other cases, however, mothers praised the actions of their non-maternal caregivers. For instance, one mother attributed the survival of her pre-term babies to the support of her non-maternal caregiver:

Oh, she keeps the children very neat and also make sure that they eat healthy foods. She is not well educated but very neat in all her dealings. I gave birth to only pre-term babies but with the help of my househelp, I was an overcomer and victory was at my side...I am and I will always be very grateful for her kindness towards me and my family (Mother, 57 years old).

Discussion

In Ghana, as with many other developing countries, the situation of (female) non-maternal caregivers caring for the children of working mothers is unlikely to change soon, with women still bearing the major responsibility for childcare (Ellis et al., 2013), female employment increasing (GSS, 2014) and limited provision of formal childcare (Quisumbing, Hallman, & Ruel, 2007; Tetteh, 2005). The priority must therefore be how to support non-maternal caregivers and mothers to provide the best possible care for children.

Our study suggests that much of the informal non-maternal childcare appears to be working well. Mothers and non-maternal caregivers were generally both involved in assessing illness symptoms and administering medicine, while mothers were generally the primary decision-makers about treatment seeking. In general, mothers appreciated the efforts of their non-maternal caregivers and vice versa, with some exceptions where there were criticisms in both directions.

However, our data also suggest some areas for concern: in particular, the tendency among non-maternal caregivers not to be aware of precautions and possible side effects, and of both mothers and non-maternal caregivers to overlook expiry dates. Moreover, although most respondents reported complying with advised drug regimens, this was not universally the case either for mothers or non-maternal caregivers. It was also the case that, while most caregivers (maternal and non-maternal) reported preferring biomedical facilities for treatment of child sickness, most also used stored 'surplus medicines' in the first instance, posing the risk of misapplication and/or inappropriate dosing (Cohen & Scheeringa, 2009; Deming, 1989). An unexplored question was how long the caregivers store medicines and how these medicines are disposed of.

The relatively small sample sizes in this study make it difficult to break the data down by age/type of non-maternal caregiver. In future work, it would be helpful to look at whether the practices of grandmothers and younger 'househelps' differ significantly. Evidence from other studies suggests that grandmothers can bring a good deal of valuable experience to childcare (Horsfall & Dempsey, 2013), but they may not always be aware of current medical advice. Moreover, in many developing countries like Ghana, the older generation of women are less likely to be literate (GSS et al, 2015) and therefore may not be able to properly perform children drug administration functions such as correct interpretation of dosages, understanding of expiry dates and other written instructions on medicines. Younger non-maternal caregivers present a different set of 'risks.' Although children and young people can be active and effective agents in health-seeking (Geissler et al, 2001; Hampshire et al, 2011), the practice of adolescent caregivers dispensing medicines to young children carries risks, especially if they are not well-informed about safe medication practices (Van Der Geest, 2002). Typically, young non-maternal caregivers who are regarded as domestic fostered children in some African communities including Ghana to serve as maids or househelps (Isiugo-Abanihe, 1985) tend to come from a less well-educated background and may have a lower level of health literacy (Hampshire et al, 2011; 2016).

But it is not just the actions of caregivers as *individuals* that matters but also *interactions between them*. In general, as noted above, mothers reported to be satisfied with the care provided by non-maternal caregivers, and the latter also reported a good relationship with the mothers. However, these relationships are fraught with power relations that may incorporate generational, educational and economic differences. For example, a young non-maternal caregiver may feel unable to point out to a mother any shortcomings in her practices, especially if her own situation is vulnerable. Such relationships embedded in differing decision-making powers could either propel or hinder efforts aimed at providing prompt and effective healthcare to sick children (Tolhurst et al, 2008).

Ghana has recently adopted a Child and Family Welfare Policy (Ministry of Gender, Children and Social Protection, 2015), to address and prevent harm to children and recognise the integral position of the family in children upbringing. This small-scale study has highlighted a little-discussed set of household childcare practices that could have implications on child health and

wellbeing. Policy makers and programme implementers should pay closer attention to child illness management within the household as an important driver of child health and survival outcomes. These may include encouraging negotiated flexible working schedules for mothers with children under five years old, extending paid maternity leave from the current three months, granting paternity leave to fathers to support household childcare (although this would have to be accompanied by cultural change) and increasing public education on correct drug administration as well as formalising the process of engaging non-maternal household child caregivers.

Our study has some clear limitations. First, it was conducted on a small scale in one area of Ghana and cannot be generalised across the country or beyond. Second, the sensitive nature of the issues explored might have made some respondents uncomfortable to provide responses to some questions, especially where they felt their practices might be viewed critically. The unequal power relations between mothers and non-maternal caregivers may also have made it difficult for non-maternal caregivers to criticise the behaviour of mothers. These limitations, notwithstanding, the in-depth nature of interviews and focus group discussions provided very valuable insights into how childcare works ‘on the ground’ in an urban setting in Ghana, where mothers have to juggle multiple responsibilities, and highlights some of the potential risks for child health and survival. The findings have highlighted a wide range of child illness management practices and drug administration which could be pursued by other researchers. It is recommended that further studies be conducted with larger samples and over a wider geographic scope. Similarly, it is recommended that the drug administration practices of other non-maternal caregivers both within the household (e.g. fathers and siblings) and outside the home (such as teachers) be explored in another study.

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Table 1- Background characteristics of mothers and non-maternal caregivers

Background Characteristics	Mothers (N=28)	Non-maternal (N=28)
Age		
15-24 years	0	12
25-34 years	22	4
35-44 years	5	1
45-54 years	1	5
55-64 years	0	3
65-74 years	0	3
Marital status		
Never married	7	12
Married	17	7
Divorced	0	3
Widowed	0	2
Not asked	4	4
Highest academic level		
None	0	7
JSS/JHS	12	19
SSSCE/WASSCE	6	0
Higher National Diploma	2	0
Bachelor	5	2
Post Graduate	3	0
Primary Occupation		
Banker	6	0
Private Business/Home-based petty trading	16	11
Student	2	6
Engineer	1	0
Insurance Broker	1	0
Administrative Secretary	2	0
Teacher	0	1
Apprentice	0	2
Unemployed (Grandmothers)	0	7
Unemployed (Househelps)	0	1

Table 2- Child-caring characteristics of mothers and non-maternal caregivers

	N (28)
Years as a non-maternal caregiver	
Less than one year	2
1-5 years	17
6 years and above	5
Non-response	4
Relationship to maternal caregiver	
Daughter (Index Child's grandmother)	10
Relative househelp (cousin)	3
Relative househelp (old aunt)	2
Non-relative househelp	13
Sex of index children	
Male	15
Female	13
Number of children in a household	
1 child	9
2 children	9
3 children	5
4 children	1
Not asked	4

Table 3- Background characteristics of Focus Group Discussants

Characteristics	Maternal Discussants (N=8)	Female discussants (N=9)	Male discussants (N=6)
Age			
10-14 years	0	2	5
15-19 years	0	7	1
20-24 years	0	0	0
25-34 years	1	0	0
35-44 years	2	0	0
45-54 years	3	0	0
55-64 years	2	0	0
Years of work experience			
Less than 10 years	2	0	0
11-20 years	4	0	0
21-30 years	2	0	0
Academic qualifications			
Bachelor	5	0	0
Post Graduate	3	0	0
Relationship to maternal caregiver			
Relative househelp	0	8	5
Non-relative Househelp	0	1	1

Table 4- Perceived index children illnesses

Perceived illnesses	Maternal (N=28)	Non-maternal (N=28)
Diarrhoea	4	4
Fever	6	6
Boil/Rashes	4	3
Malaria	7	4
Flu	2	5
Growth Impairment	1	1
Headache	1	0
Measles	1	1
*Other	2	1
None	0	3

***other-**Blood in child's genitalia, inability to take breast milk and chicken pox

Table 5-Choice of treatment options

Health Facility	Maternal	Non-maternal
Hospital/Clinic	18	15
Pharmacy	2	5
Home treatment/First Aid	4	3
Missing Data	4	5
Total	28	28

Table 6:-Drug administration practices

Medicine related issues	Mothers	Non-maternal
Compliance with recommended regimen	17	17
Checking for medicine side effects	17	2
Checking for other medicine caution details	12	5
Checking for medicine expiry dates	9	8